

RESEARCH NOTES

COHABITATION OF SIX SPECIES OF SPIDERS IN WEBS
OF *CYRTOPHORA MOLUCCENSIS* (ARANEAE, ARANEIDAE)
IN MOOREA, FRENCH POLYNESIA

Webs of colonial spiders often harbor many species of spiders in addition to the original architects of the web (Buskirk 1982). On Moorea (French Polynesia) I noticed several different species in webs of the colonial spider *Cyrtophora moluccensis* (Doleschall) (Araneidae). On 26-28 April 1991, I collected all inhabitants of five small colonies and found five species in addition to *C. moluccensis* (Table 1). *Leucauge granulata* (Walckenaer) (Araneidae) built its own webs entirely or partially supported by the frame threads of the colonial spider's web. *Pholcus ancoralis* L. Koch (Pholcidae) also built its own web, but did so in the upper barrier web of *C. moluccensis*. *Tangaroa tahitiensis* (Berland) (Uloboridae) constructed its own web, typically in the lower barrier web and sometimes on the frame threads. I found *Argyrodus argentatus* O.P.-Cambridge (Theridiidae) in all parts of the colonial web but failed to note whether it built its own webs. Also, I did not notice whether the single specimen of *Theridion adamsoni* Berland (Theridiidae) constructed its own web.

Argyrodus argentatus has been found in *C. moluccensis* webs on the Pacific island of Yap (Berry 1987), and its congeners are common kleptoparasites in the webs of other colonial and noncolonial spiders (Kaston 1965). The other four species are not known to be frequent residents of webs other than their own (J. Beatty, pers.

commun.). However, Rypstra (1979) and Lubin (1974) noted *Leucauge* species building webs attached to the guylines of *Cyrtophora citricola* (ForskÅal) and *C. moluccensis* colonies, respectively. *Archaeearanea tepidariorum* (C. L. Koch) (reported as *Theridion tepidariorum*) has been found in *C. citricola* webs as well (Kaston 1965). Within the Uloboridae, *Uloborus* species cohabit with *Cyrtophora* and another colonial spider, *Stegodyphus sarasinorum* Karsch (Rypstra 1979). Jackson & Rowe (1987) describe *Pholcus ancoralis* as a web-invading spider, but did not find it in *Cyrtophora* webs.

Spiders that inhabit colonial spiders' webs may be obligatory kleptoparasites (e.g., many *Argyrodus* species) or facultative commensals that build their own food-capturing webs within those of the social spider. Cohabitation of the second type may be selected for in habitats where good web sites are rare (Buskirk 1986) or in which disturbances like rain or falling leaves are common (Riechert et al. 1986); here webs of the cohabiting species may gain protection from their location within the sturdier web of the social spider. Sharing webs also reduces the cost of silk production for the cohabiting spider (e.g., Jakob 1991). Finally, the large size of colonial spider webs allows them to occupy open spaces that are high in insect traffic (Lubin 1974), and cohabitants may benefit from this access to prey. With

Table 1.—Spiders found in five webs of *Cyrtophora moluccensis* near Paopao, Moorea, French Polynesia. Juvenile males were recognized by their swollen palps. Juvenile *C. moluccensis* that were as large or larger than males were termed juvenile females and their number is shown in parentheses next to that of juvenile males.

| | Adults | | Juveniles | | Total |
|-------------------------------|--------|---------|-----------|---------|-------|
| | Males | Females | Males | Unsexed | |
| <i>Cyrtophora moluccensis</i> | 13 | 7 | 6 (25) | 35 | 86 |
| <i>Argyrodus argentatus</i> | 3 | 10 | 8 | 19 | 40 |
| <i>Leucauge granulata</i> | 0 | 3 | 0 | 8 | 11 |
| <i>Pholcus ancoralis</i> | 5 | 3 | 0 | 20 | 28 |
| <i>Theridion adamsoni</i> | 0 | 1 | 0 | 0 | 1 |
| <i>Tangaroa tahitiensis</i> | 4 | 11 | 4 | 52 | 71 |

the exception of *A. argentatus* (if it is an obligatory kleptoparasite), web cohabitation by so many species on Moorea may have been encouraged by environmental conditions. I collected webs near the end of the rainy season, and storms that brought down both rain and bits of vegetation were common. The web of *C. moluccensis* is very strong (Lubin 1974); by building within its confines the other species could use it as a framework that could both withstand the blows of falling objects and could deflect these objects from their own frail webs. It would be interesting to determine whether cohabitation is a less common occurrence during Moorea's dry season.

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Heather C. Proctor¹: Department of Zoology, Erindale College, University of Toronto, Mississauga, Ontario, L5L 1C6 Canada.

¹Current address: Department of Biological Sciences, University of Calgary, Calgary, Alberta, T2N 1N4 Canada.